Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
Application of Kuiper Systems LLC for Authority to Launch and Operate a Non-Geostationary Satellite Orbit System in Ka-band Frequencies	)	IBFS File No. SAT-LOA-20190704-00057
	)	Call Sign S3051

COMMENTS OF
THE INTERACTIVE ENTERTAINMENT TRADE ORGANIZATIONS LISTED BELOW

I. Introduction

The Interactive Entertainment Trade Organizations listed below ("IETOs") respectfully submit these comments in response to the Federal Communication Commission's (the "Commission") Accepted for Filing Public Notice of the Kuiper Systems LLC's Application for Authority to Launch and Operate a Non-Geostationary Satellite Orbit ("NGSO") System in Ka-band Frequencies (the "Application"). In the Application, Amazon purports that the Kuiper System will deliver broadband communications in collaboration with other Ka-band NGSO systems to tens of millions of unserved and underserved consumers and businesses both nationally and globally that currently cannot be adequately serviced by terrestrial broadband Internet services. The IETOs are commenting to highlight the importance of the sharing of spectrum among NGSO systems. More specifically, the IETOs contend that the sharing of spectrum as contemplated in the Application is crucial to maximizing uptime and creating a competitive and collaborative environment in the provision of satellite broadband communication services where the providers of those services may co-exist in a flexible manner that will offer customers reliable connectivity across a competitive marketplace.

II. Background

Though the origin of online video games coincides with the advent of packet-based computer networking in the 1970s, the accessibility and potential of interactive entertainment was truly realized due to improvements in broadband Internet and higher connection speeds. As online video games became more

accessible, they began to evolve in a way that introduced both variety and popularity. This quickly led to more competition, and more competition led to greater innovation. Now the video game market has grown to a $150 billion global industry, [1] the size of which is unequivocally tied to connectivity.

As the size and pervasiveness of the industry grew, the benefits of interactive entertainment became a subject of study with research showing that video games can provide a multitude of public-interest benefits to players in addition to their entertainment value. Online games in particular may promote civic engagement due to the collaborative, cooperative, and prosocial interactions that many online gaming experiences require.[2] Depending on the nature of certain video games, they may result in a slew of cognitive benefits including promoting creativity, encouraging persistence, motivating players to increase physical activity, and boosting positive social behavior.[3] Online gaming has helped foster friendship, community, and healthy social interaction for individuals who experienced disability and illness and is proven to help combat the effects of social isolation.[4] These benefits directly led to new applications of games including for the promotion of well-being, cognitive health, and even mental health treatment.[5]

NGSO systems will help bring this thriving video game industry and its benefits to new markets that were previously unserved by terrestrial Internet services. Just the same, markets that are currently underserved and unable to receive the low-latency connection that online gaming can require will also benefit and realize an even playing field with a competitive connection speed that is crucial in online

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[1] Tom Wijman, *The Global Games Market Will Generate $152.1 Billion in 2019 as the U.S. Overtakes China as the Biggest Market*, NEWZOO (June 18, 2019), https://newzoo.com/insights/articles/the-global-games-market-will-generate-152-1-billion-in-2019-as-the-u-s-overtakes-china-as-the-biggest-market/.

[2] See Granic, Isabela, Adam Lobel, and Rutger C. M. E. Engels, *The Benefits of Playing Video Games*, AMERICAN PSYCHOLOGIST 69.1, 66–78, 72 (2014), https://www.apa.org/pubs/journals/releases/amp-a0034857.pdf.

[3] Patricia E. Vance, *3 Benefits of Video Games that Every Parent Should Know*, ESRB (Mar. 12, 2019), https://www.esrb.org/blog/surprising-benefits-of-video-games/; Peter Gray, Ph.D., *Benefits of Play Revealed in Research on Video Gaming: Video gaming leads to improved cognition, creativity, sociability, and more*, PSYCHOLOGY TODAY (Mar. 27, 2018), https://www.psychologytoday.com/us/blog/freedom-learn/201803/benefits-play-revealed-in-research-video-gaming.

[4] Hawken Miller, *'It's my escape.' How video games help people cope with disabilities.*, THE WASHINGTON POST (Oct. 14, 2019), https://www.washingtonpost.com/video-games/2019/10/14/its-my-escape-how-video-games-help-people-cope-with-disabilities/.

[5] See Granic, Isabela, Adam Lobel, and Rutger C. M. E. Engels, The Benefits of Playing Video Games, AMERICAN PSYCHOLOGIST 69.1, 66–78, 72 (2014), https://www.apa.org/pubs/journals/releases/amp-a0034857.pdf.

gaming. Even in already-serviced areas, a competitive marketplace of NGSO systems will likely result in a reduction of price for low latency Internet that will make online gaming available to new segments of the population. Aside from the consumer benefits, low latency broadband also has the potential to induce competition by enabling new game companies to exist in areas where establishing a business that required a high-speed connection was traditionally infeasible. It is important that the Commission consider these goals and ensure that NGSO systems exist in a regime that is competitive and useful to consumers so they may realize the benefits of far-reaching, low latency broadband Internet.

III. The Commission Should Promote Sharing Spectrum and Collaboration Among NGSO Systems

A regime that promotes good-faith coordination among NGSO systems to share spectrum access, as opposed to one that requires non-interference, will directly impact the end-user by ensuring connectivity as well as more market options—the former being crucial to reasonable user experience and the latter creating a healthy marketplace that will encourage further innovation.

A. Sharing Spectrum Will Ensure Connectivity

As interactive entertainment providers, the IETOs are largely concerned with a user's experience and uninterrupted gameplay. The practical implications of whether an NGSO system must operate on a non-interference basis with another NGSO system, or whether multiple NGSO systems can collaborate and flexibly share spectrum, is the difference between a user experiencing a severed connection or merely a momentary lag—a delay between the action of players and the reaction of the server supporting the video game—in gameplay. While a high speed, low latency connection is desired in gaming to reduce lag and ensure high performance, some degree of lag can be tolerated by players and, in fact, is normal during gameplay. On the other hand, a loss of complete connection with a video game server is not as tolerable and typically frustrates a user's gameplay experience tremendously, as a user must re-connect to the game server before continuing play. Simply put, a temporary reduction in connection speed will impact a user less than a complete loss of connection. However, an NGSO system that must operate with non-interference would sever a consumer's connection as a result of its non-interference responsibilities whenever in-line interference occurred. On the other hand, since some lag is not only typical, but far less

detrimental to a user's in-game experience, a flexible regime geared toward efficient use of spectrum through collaboration is one that will have less impact on the end user, and therefore is more desirable.

B. Sharing Spectrum Will Promote a Competitive Market

The potential of NGSO systems to bring high speed, low latency broadband Internet to further reaches of the population is an undoubtedly desirable service, and those NGSO systems should operate on a collaborative basis that will ensure a healthy, competitive marketplace. In the business-to-business context, the availability of services is commonly known as "uptime." The ability for a service provider to guarantee uptime is not only a key feature of its services, but typically is expected to meet an industry rate in excess of 99%. If certain NGSO systems were forced to operate on a non-interference basis in relation to other NGSO systems, there would be a direct consequence in the uptime that a non-interference-ensuring NGSO system could reasonably guarantee. Therefore, a non-interference regime would likely result in a marketplace where nascent NGSO systems could not make equivalent guarantees regarding uptime as compared to incumbent NGSO systems. As more NGSO systems entered the space, the amount of in-line interference events would increase, making it less and less viable for nascent NGSO systems to compete with incumbents. On the other hand, a regime that induces sharing of spectrum would result in an environment where NGSO systems could collaborate to maintain uptime in a predictable fashion. Such a regime would create a competitive marketplace, where better service is a product of an NGSO system's innovations and capabilities rather than pursuant to the facilitation of non-interference by other NGSO systems. Simply put, a regime that requires sharing spectrum will promote healthy competition and innovation, while one that requires non-interference will inhibit the same.

IV. Conclusion

Based on the foregoing stated position, the IETOs respectfully request that the Commission promote a flexible and collaborative use of spectrum among NGSO systems as contemplated by Amazon in the Application.

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October 28, 2019

Respectfully submitted,

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